

A NEW SPECIES OF *PSEUDOSINELLA* FROM NANJING, CHINA (COLLEMBOLA: ENTOMOBRYIDAE)¹

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ABSTRACT: A new species, *Pseudosinella tumula* is described from Nanjing, China. It shares many characteristics with the *Pseudosinella dodecophthalma* group, but differs from them in having 4+4 eyes, lacking seta R of the labial triangle, unguiculus shape, and other features. It also shares some features with another Chinese species, *P. tridentifera* but differs in tenent hair shape and chaetotaxy.

The genus *Pseudosinella* Schäffer is one of the largest and most widespread genera in Collembola. So far, about 280 species have been described in the world, but only four species have been reported from China. *P. tridentifera* Rusek, 1971, *P. bellingeri* and *P. sexoculata* (Wang, Christiansen and Chen 2002), and *P. caoi* (Chen, Fang and Christiansen in press)

Pseudosinella tumula, NEW SPECIES

(Figs. 1-13)

Maximum body length 0.98mm.

Color white to pale yellow except for dark blue eyepatches. Scales hyaline, oval to circular, and absent from antennae and legs.

Head Eyes 4+4 (Fig. 1 & 2). Antennae 1.25-1.42 times as long as cephalic diagonal. Ant. IV lacking apical bulb; apical organ of Ant. III with setae 2 & 3 rod-like, setae 4 & 5 about same length, slightly longer than setae 2 & 3 (see Chen & Christiansen 1993, figure 9). Measurements of antennal segments as shown in Table 1. Outer differentiated seta of labial appendage slender, not reaching apex of its papilla. Labral setae 4-5-5-4, prelabral setae slender and ciliate, remainder smooth; labral intrusion V-shaped and labral papillae absent. Outer maxillary palp with sub-apical seta slightly longer than or subequal to apical one; sublobular plate with 3 smooth, short setae (Fig. 3).

Chaetotaxy Body macrochaetae 00/0100+3, cephalic and abdominal chaetotaxy as shown in Table 2 & Fig. 1. Thoracic "collar" with 3-4 rows of heavy, truncate macrochaetae. Chaetotaxy of labium base: M₁-M₂-0-E-L₁-L₂, seta R absent, all setae ciliate (Fig. 4). 4+4 ciliate setae along cephalic ventral groove. Chaetotaxy of Abd. II as shown in Fig. 5, with seta P absent, macrochaeta B ciliate, setae a, q₁ and q₂ slightly ciliate and seta C2 a smooth microseta. Abd. IV without macrochaeta P₁ or a supplementary setae in anterior bothriotrichal complex and with 3+3 medial macrochaetae (Fig. 6).

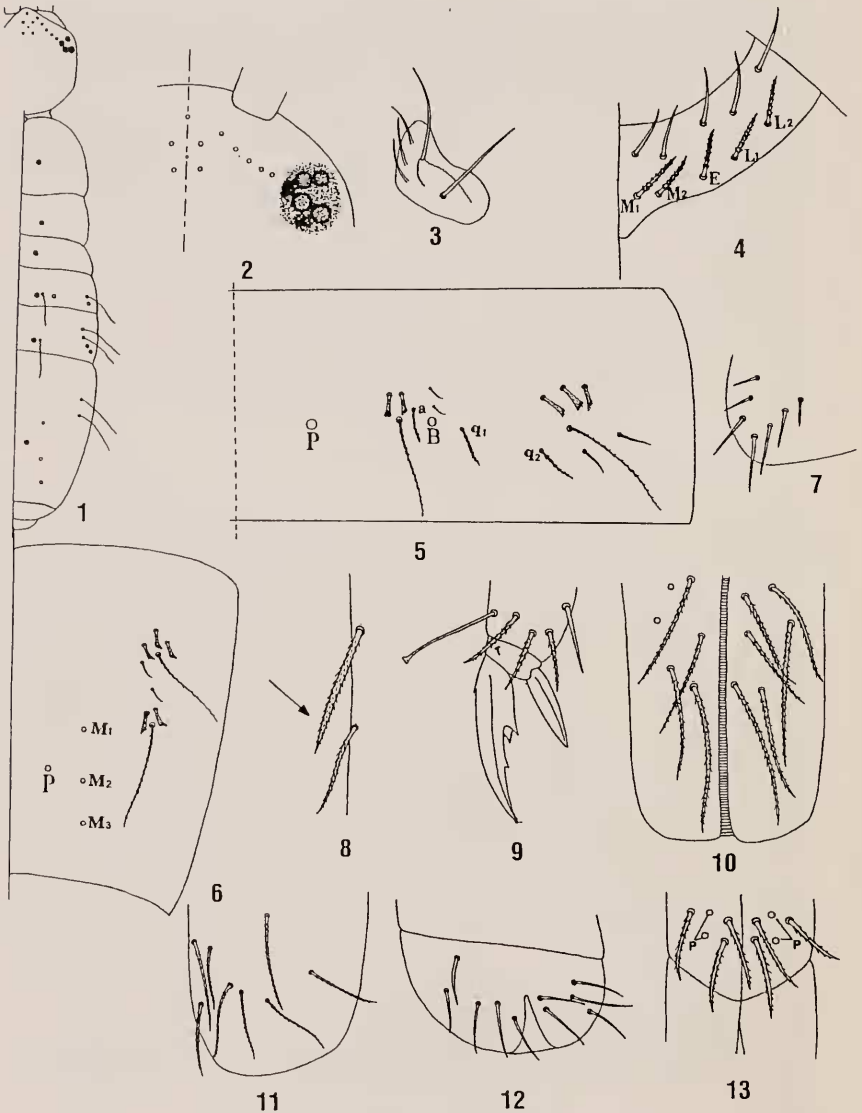
Legs Trochanteral organ with 7 smooth setae (Fig. 7). Inner differentiated outstanding setae of hind tibiotarsus located at 0.25-0.33 distance from base to apex of tibiotarsus, ciliate, acuminate, only slightly longer than and barely distinguishable from other large setae (Fig. 8). Unguis with 3 clear teeth, basal pair subequal, median tooth small and located 0.56-0.65 the distance from base to apex of inner unguis. Unguiculus acuminate without outer tooth. Tenent hair clavate, slightly shorter than inner edge of unguis (Fig. 9).

Ventral tube Unscaled, with 4+4 to 6+6 large ciliate setae on anterior face (Fig.10) and 4-8 slender ciliate setae on posterior face (Fig.11), lateral flaps with 5 + 5 smooth setae (Fig. 12).

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Figs. 1-13, *Pseudosinella tumula*, sp. nov. 1. semi-diagrammatic dorsal chaetotaxy, pseudopores solid black; 2. semi-diagrammatic cephalic chaetotaxy; 3. maxillary palp; 4. labial triangle; 5. chaetotaxy of Abd. II; 6. chaetotaxy of Abd. IV; 7. trochanteral organ; 8. inner differentiated tibiotarsal setae; 9. hind foot complex; 10. anterior face of ventral tube; 11. posterior face of ventral tube; 12. lateral flaps of ventral tube; 13. manubrial plaque.

Furcula Manubrium and dentes scaled only ventrally. Manubrium without smooth setae. Manubrial plaque with 1 outer and 2 inner ciliate setae (Fig. 13). Uncrenulate dens 2.71-3.16 times length of mucro. Mucro with apical tooth 1.22-1.40 times as long as basal one; basal spine just attaining apex of subapical tooth.

Male genital plate Unseen.

Types (all on slides) Holotype female, paratypes 6 females, P. R. China: Jiangsu: Nanjing: Ming Tomb, 111-8-1990, collection numbers 8019, 8020, 8021, Chen Jianxiu & Kenneth Christiansen coll.. Deposited in Department of Biology, Nanjing University, China.

Ecology Found in litter and under stones in deciduous forest.

Etymology The name of the species is derived from the Latin *tumulus*-meaning tomb, which refers to the collection locality of type specimens, Ming Tomb in the vicinity of Nanjing.

Remarks Members of the *P. dodecopthalma* group share many features, including the large number of eyes (4 to 6) and the presence of 3+3 median macrochaetae (M_1 , M_2 and M_3) on Abd. IV (Table 2). The new species, *tumula*, obviously belongs to this group but differs from all the known members of the group in lacking a labial seta R and having microchaetae a, q_1 and q_2 on Abd. II, all ciliate rather than smooth or absent.

So far, the group consists of 5 species, including *tumula*. It seems almost certain that they are closely related, but their distribution is disjunct. Three of

Table 1 Measurements (mm) of *Pseudosinella tumula*.

Slide & specimen number	C. D.	Ant.I	Ant.II	Ant.III	Ant.IV	Ratios of Ant.I:II:III:IV
8019-1	.18	.020	.070	.037	.103	1:3.5:1.85:5.15
8020-2	.18	.037	.058	.061	.099	1:1.57:1.65:2.68
8021-1	.17	.021	.051	.038	.095	1:2.43:1.81:4.52

Table 2. *Pseudosinella duodecopthalma* group. See Christiansen, Bellinger and Gama 1990 or description of characters and character states.

Character number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
tumula	1	4	4	5	4	4	4	2	4	1	2(1)	2(1)	4	0	3	0	1	3	1	
dodecopthalma	1	1	4	4	4	3,4	4	4	1	4	1	1	1	4	0	3	0	1	3	1
octophthalma	1	1	4	4	4	4	4	4	1	4	1	1	1	4	0	3	0	1	3	1
stompi	1	1	4	4	4	4	4	4	1	4	1	1	1	4	0	3	0	1	3	1
violeta	1	4	4	2	4	4	4	1	1	1	1	5	4	0	3	0	1	3	2	

Character number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
tumula	2	2	1(2)	1	1	4	2	1	2	6	1	1	0.98	56-65	1.25-1.42	2	1	2	2	1
dodecopthalma	2	2	1	1	3	6	2	6	1	1	?	1	1.60	60	1.4	?	2	2	2	1
octophthalma	3	2	1	1	3	4	?	?	1	1	?	?	1.3	65	1.6	3	2	2	2	1
stompi	3	2	1	1	3	5	?	?	1	1	?	?	1.4	65	1.5	?	2	2	2	1
violeta	2	1	1	1	2	6	?	?	2	3	1	1	1.2	32	1.3	?	1	1	1	1

them, *dodecophalma*, *octophthalma* & *stompi*, are cave forms from France, while *violeta* from Caribbean and *tumula* from China are surface species.

P. tumula shows some similarities to the Chinese 4+4-eyed species *tridentifera*, but differs from the latter in many respects, such as, having 3+3 median macrochaetae (M_1 , M_2 & M_3) on Abd. IV as compared to only 1+1 macrochaeta (M_2) in *tridentifera*; labial seta M_2 is present in *tumula* but absent in *tridentifera*; ciliate macrochaeta B on Abd. II rather than smooth microchaeta b as in *tridentifera*.

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